Introduction to Simulink

■ analysing

closed loop → it still open loop untill we start to enhance it at this time we say it is closed loop.

physical meaning of stability ⇒ all system are stable

stability → it appear when there are outside parameter effect on the system.
↳ so we use stablity to protect the system from affecting be this parameters.

energ is related to stability
we need to reduce energy losses.

system ⟶ physical Body need to future predection
① charactristic « model, observation»
estimator depend on «adaptor« adapt itself and tell us the needed information»

I/P ─→ [System] ─→ O/P

I/P ─→ [ ] ─→ o/p

2 ؛ energy «(o/p)»　نظام آخر يكون خاص في الأنظمة تحت تحكم اخرى
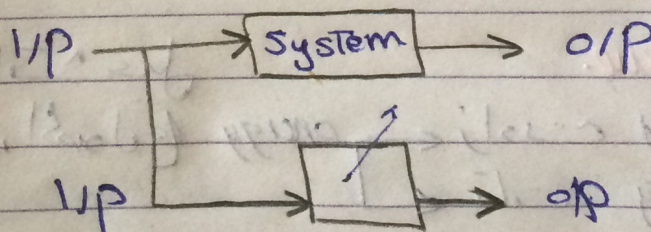
1. adap (A, B, C, D)
J أهم　↳ direct Transmission

2. estimator ، All variable»

A → eign value of system ≃ poles
$\rightarrow$ A matrix Can transfer into the diagonal matrix in this case.
$\hookrightarrow$ the diagonal values is equal eign value.

ex $\dot{x} = Ax$

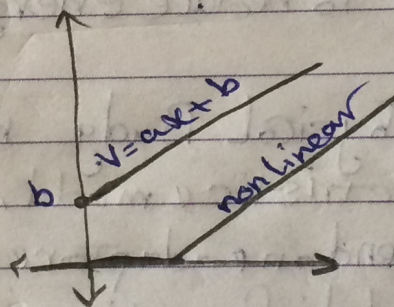$SI \, X(s) - X(0) = A \, X(s)$

$(SI - A) \, X(s) = X(0)$
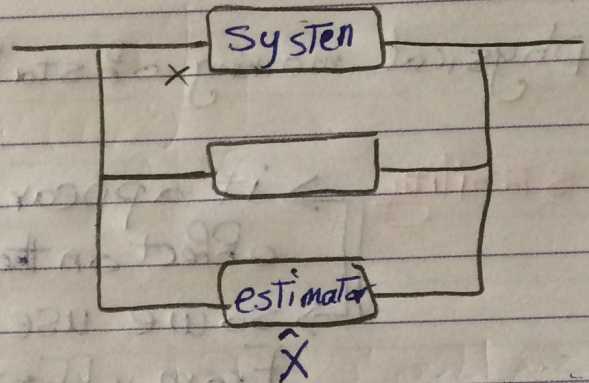
check linearty

① ohm

نقول عندك تحقق قانون أي ملا تزود في الدخل يجب أن يكون الزيادة نفسها الخرج بنفس المقدار،

2. Super position

$V = ax + b$

multi o/p الظاهرة نفسها في حالة نفس
multi i/p

Charactristic Carve.   منحنى الثابت المثل

stability زادت ← energy كل ما الممثل نكبر وني
unstability قلت ←
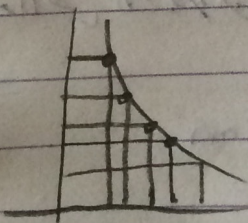
* The main objective of any system is to obtain eign value.

gordan form ⟹ all the upor ↓ ⁱ₀ 0
eign value. →diagonal → stable
⎡ at least 1 (+) unstable.
⎢ 0 only stable & critical "
⎣ 2's unstable.

$$\begin{pmatrix} \dot{X_1} \\ \dot{X_2} \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} X_1 \\ X_2 \end{pmatrix}$$

• $\dot{X_1} = X_2 =$ Const $\dfrac{dX_1}{dt} = X_2 \Rightarrow X = t$
• $X_2 = 0$ all the time ثابتة   تكامل طرفين للطرفين

• إذا سيتم تحليل النظام فقط نعمل على inverse الـ matrix

1 - eign value.
2 - eign vector   للنظر في الـ eign value
        independency → 0   يبين من الاعتماد على درجات
System can be invertable if parameters ، eign value "
non zero

ما يصير ***

B   "Controllable or not Controllable"

Controllable ⟹ نتحكم أقدر i/p ⟹ o/p نتيجة قابلة
is the ability of the i/p to change the state of variable
from one point to another in a specific time.